Due to various disruptions over the past two years, global supply chain operations now function in a state of “permanent volatility.”

Although supply chains have been constantly changing for years in response to pervasive global economic forces, risk and resilience have often been minimized in determining landed costs. And, while near-sourcing is a timely subject, the predominance of Asia as a sourcing locus for high-value goods remains.

A recent report prepared for the World Economic Forum (WEF) by the Wharton Risk Management and Decision Process Center underscored why this approach must change. Previously, risks were assessed in individual silos, and the magnifying impact one problem might have inflicted on others was not fully understood.

The destruction of the energy grid in Japan—and the resulting, layered disruptions incurred by Japanese manufacturers and suppliers—is illustrative. The impact of interruptions at Tier 2 and Tier 3 suppliers was disproportionate to their relative size.

As industry-specific manufacturing clusters developed in Asia, it was not uncommon for a single provider to provide highly-specialized components to a number of customers “up the supply chain.” While this improved the efficiency of Asia as a global sourcing hub, the proliferation of these single-source providers resulted in significantly increased supply chain risk.

However, network resiliency can be threatened by more than just natural disasters. Political risk—ranging from outright conflict to changes in local governance—must also be considered. With this in mind, we recently analyzed...
Driving Change in the Global Supply Chain: Intermodal

the capabilities of the domestic intermodal network to determine its resiliency as it applies to both domestic shipments as well as international. To do this, we assembled a diverse panel representing transportation capacity consumers and providers who deal with resiliency challenges every day to catalogue their best practices and lessons learned.

When mother nature strikes
During the major Midwest flooding that occurred last year, one of the primary transcontinental service arteries was severed, and cargo moving over West Coast ports was adversely affected.

BNSF, one of only two U.S. intermodal providers in the western U.S., was forced to significantly revise their operating plan as key network segments went in and out of service. According to Greg Fox, executive vice president of operations for BNSF, the carrier dealt with catastrophic disruptions by rerouting traffic over alternative routes or detouring over other railroads. “All the time we were investing millions of dollars in shoring up affected infrastructure, such as bridges and culverts and raising track to enable continued operations,” says Fox.

When catastrophic climate events occur, they often affect more than one mode. Flooding that affects rail operations can also impact the National Highway Network, of which the Interstate Highway System is a major component. The challenge for railroads in this case was not only to restore capacity that existed prior to the disruption, but also to support year-on-year growth.

Wilson Lester, senior vice president of supply chain at drugstore chain Rite Aid, understands this dichotomy. Not only does intermodal transportation support Rite Aid’s sustainability objectives, but it also offers a portfolio of other transportation alternatives.

“We are impressed with the significant improvement in the reliability of intermodal services,” says Lester. “The ‘radius of performance acceptability’ has grown from moves over 700 miles—mainly coast to coast—to shorter haul moves of 50 percent that distance.” Lester adds that Rite Aid is currently looking to expand it intermodal options to over 500 domestic lanes. “Additionally, our import deconsolidation centers are playing an increasingly responsible role in our domestic freight program,” he says.

Seeking safe sourcing
As we mention at the outset, supply chain disruptions quickly highlighted the problem of single-source suppliers. Lack of uniform transparency methods exacerbated the problems.

In Asia, for example, sourcing decisions are frequently established based on “traditional relationships,” complicated inter-company holdings, and favorable economics without considering whether production was in different countries or had alternative sourcing and/or transportation routings available.

With some items, the hazardous nature of goods moving between North America and Asia only complicated the challenge. While this description generally involves bulk transport, or goods in 55-gallon drums, it can now encompass items such as safety air bags (which contain an explosive component) or raw cotton (which is a vessel fire hazard.)

Bill Rogers, vice president for operational effectiveness at chemical distribution leader Univar, says that safety and reliability transcend all other criteria in carrier selection in his operation. However, as intermodal becomes more robust and reliable, he sees his firm utilizing more intermodal solutions.

“As our culture evolves and our planning system capabilities increase, we should be able to convert more traffic lanes to intermodal service,” says Rogers. He further notes that as the company’s more than 100 U.S. facilities are consolidated, intermodal conversion is an important part of its future strategy in optimizing transportation performance.

Providing seamless supply chains
Intermodal transportation systems have a heightened challenge because disparate providers are assembled to produce door-to-door transportation. This challenge is magnified in transportation between Asia and North America that has a single “carrier” integrating numerous service and transport providers to provide a seamless intercontinental movement. These activities require closer coordination between procurement and risk management groups. The potential costs of supply chain disruption need to be factored into transportation purchasing decisions, and this requires enhanced transparency in underlying assumptions.

Paul Bergant, president of J.B. Hunt Intermodal, has seen intermodal growth accelerating with the upward spiral in fuel prices, trucking capacity shortages, and insufficient highway infrastructure. While intermodal is the company’s largest division, most customers utilize other products in their portfolio (e.g., truck and dedicated) to more closely match demand and supply.
Intermodal growth continues to accelerate with the tremendous investments the railroads, especially in the East, continue to make in intermodal infrastructure providing continuous service and reliability improvements,” says Bergant. “In fact, more than 80 percent of freight once diverted from the highway remains on the rails even when fuel prices decline. This is a positive sign that intermodal growth will continue and is sustainable over time.”

Tradeoffs

But the tradeoffs are complex. A recent Accenture study highlighted significant global supply challenges such as insufficient cost information to support financial planning activities and inadequate staffing for global supply chain and trade compliance activities.

In the trans-Pacific, the study revealed that air cargo is starting to be replaced by ocean movement. The economic tradeoffs may not be apparent for some—even without considering the ancillary challenges. However, the risks extend beyond the supply chain silo. Geo-political factors such as economic disparity, climate change, and global governance were also identified in the WEF study.

For example, execution risk is increased by rapid urbanization. With over 50 percent of the world’s population living in cities, suppliers, carriers and consumers need to develop transportation and distribution strategies that address that challenge. While urbanization is a major issue in all the BRICS—not to mention most parts of Asia—it poses challenges in North America too.

Richard Larrabee, director of port commerce at the Port of New York & New Jersey says that while rail market share is growing, 80 percent of the 5.4 million TEUs moving through the port continue to move by truck. Non-traditional initiatives—such as barging containers from Newark to Brooklyn—were undertaken to deal with critical bottlenecks such as the George Washington Bridge.

One could determine that North American intermodal has improved its resiliency through experience gathered from dealing with severe challenges and disruptions. Rapidly advancing capabilities in information technology enable rapid evaluation of alternatives and their execution much faster than ever before.

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